

***THIS OPINION WAS NOT WRITTEN FOR PUBLICATION***

The opinion in support of the decision being entered today  
(1) was not written for publication in a law journal and  
(2) is not binding precedent of the Board.

Paper No. 26

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

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*Ex parte* TOMOKI MURAOKA  
and MASAYUKI KOBAYASHI

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Appeal No. 1996-3777  
Application 08/103,915<sup>1</sup>

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ON BRIEF

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Before DOWNEY, WARREN and KRATZ, *Administrative Patent Judges*.

WARREN, *Administrative Patent Judge*.

*Decision on Appeal and Opinion*

This is an appeal under 35 U.S.C. § 134 from the decision of the examiner refusing to allow claims 1 and 3 as amended subsequent to the final rejection, which are all of the claims remaining in the application.<sup>2</sup>

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<sup>1</sup> Application for patent filed August 10, 1993.

<sup>2</sup> See the amendment of May 17, 1995 (Paper No. 11) and the amendment of September 18, 1995 (Paper No. 19). Appellants canceled claims 4 through 7 in the former amendment and canceled claim 2 in the latter amendment. We observe that the former amendment has not been clerically entered.

We have carefully considered the record before us, and based thereon, find that we cannot sustain the rejection of claims 1 and 3 under 35 U.S.C § 103 over Muraoka et al. or JP60-230960 (hereinafter Isokawa et al.) or JP63-216952 (hereinafter Takada et al.) or JP02-290640 (hereinafter Maki et al.) in view of the admitted prior art at page 1, lines 7-16 of the appellants' specification (answer, pages 3-4).<sup>3</sup>

We find that appealed claim 1 encompasses a bearing comprising an inner or outer race as defined in a product-by-process format, wherein (1) at least one inner or outer race is made of an alloy steel consisting essentially of the specified amounts of C, Si, Mn, Cr and optionally B, the balance being Fe, (2) a flange that is to be machine tooled is integrally formed with at least one of the inner and outer races by *hot* forging and cooling to room temperature to a maximum hardness of less than Hv 230; and (3) after the flange has been machine tooled, at least a race track of one of said inner and outer races, having either a rolling groove or sliding region, is subjected to a hardening treatment to a hardness of at least Hv 653. *See generally, In re Bridgeford*, 357 F.2d 679, 682-83, 149 USPQ 55, 57-58 (CCPA 1966).

According to the examiner, the references evince that "the instant alloy steel for rolling-parts are known in the art," and that while the references *do not disclose* the rolling-part fabrication steps such as *hot* forging and *drilling*, these steps are also known in the same art as seen from appellants' specification (answer, pages 3-4). Thus, the examiner concludes that "a product produced by a *known rolling-parts alloy steel with a known method . . . is unpatentable over the*" prior art bearings and that because the prior art discloses a *substantially similar product*, the burden of proof has shifted to appellants to establish that their product is patentably distinct (answer, page 4; emphasis supplied). The examiner points out that "the instant claimed 'integral flange' reads on the non-hardened parts of a bearing race" such as non-flange parts of the rolling-part structures shown in Muraoka et al (supplemental examiner's answer, pages 1-2). Appellants submit that none of the

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<sup>3</sup> The references relied on by the examiner with respect to the ground of rejection are listed at page 2 of the answer. We refer in our opinion to the translations of each of Isokawa et al., Takada et al. and Maki et al. prepared for the PTO by FLS, Inc. in September 1996, a copy of which is attached to this decision.

references is directed to a bearing comprising a race having an integral flange; that Isokawa et al. and Takada et al. are directed to *cold* forging; that Muraoka et al. uses *cold*-rolling before the hardening step; that Maki et al. is directed to “a method for producing an outer ring for a uniform motion joint which minimizes forging cracks;” and that the alloy steel compositions taught by the references are disclosed for such purposes (principal brief, pages 4-5; supplemental reply brief, pages 2-3). Thus, appellants argue that the claimed bearing is not a “known product produced by a known process” and that there is no motivation to combine the references in the manner proposed by the examiner (reply brief, pages 1-2 and 3).

Based on the teaching in the applied references and the admitted prior art set forth in the specification, we must agree with appellants. It is well settled that in order to establish a *prima facie* case of obviousness, “[b]oth the suggestion and the reasonable expectation of success must be found in the prior art and not in applicant’s disclosure.” *In re Vaeck*, 947 F.2d 488, 493, 20 USPQ2d 1438, 1442 (Fed. Cir. 1991), citing *In re Dow Chemical Co.*, 837 F.2d 469, 473, 5 USPQ2d 1529, 1531 (Fed. Cir. 1988). Thus, a *prima facie* case of obviousness is established by showing that some objective teaching or suggestion in the applied prior art taken as a whole and/or knowledge generally available to one of ordinary skill in the art would have led that person to the claimed invention, including each and every limitation of the claims, without recourse to the teachings in appellants’ disclosure. *See generally In re Oetiker*, 977 F.2d 1443, 1447-48, 24 USPQ2d 1443, 1446-47 (Fed. Cir. 1992) (Nies, J., concurring). This showing can be established on similarity of product or of process between the claimed invention and the prior art as stated by the court in *In re Best*, 562 F.2d 1252, 1255, 195 USPQ 430, 433-(CCPA 1977):

Where, as here, the claimed and prior art *products* are *identical* or *substantially identical*, or are produced by *identical* or *substantially identical processes*, the PTO can require an applicant to prove that the prior art products do not necessarily or inherently possess the characteristics of his claimed product. *See In re Ludtke* [441 F.2d 660, 169 USPQ 563 (CCPA 1971)]. [Emphasis supplied.]

In the record before us, we fail to find either an identical or substantially identical machine tooled, flanged bearing produced by an identical or substantial identical process. The process of forming a machine tooled, flanged bearing is known as admitted by appellants in their specification, and

appellants do not dispute that the process steps recited in appealed claim 1 are known in the art. However, the examiner has admitted that the “references do not disclose the rolling-parts fabrication steps such as hot forging and drilling” or a flanged bearing (answer, sentence bridging pages 3-4). With respect to a flanged bearing, we note that the examiner contends that “the instant claimed ‘integral flange’ reads on the non-hardened parts of a bearing race,” pointing to two figures of Muraoka et al. (supplemental answer, paragraph bridging pages 1-2). However, it is clear from appellants’ specification as it would be interpreted by one of ordinary skill in this art that the term “flange” as used in appealed claim 1 has its ordinary meaning and encompasses the configuration shown in specification Figs. 1 and 2. *In re Morris*, 127 F.3d 1048, 1053-56, 44 USPQ2d 1023, 1027-30 (Fed. Cir. 1997); *In re Zletz*, 893 F.2d 319, 321-22, 13 USPQ2d 1320, 1322 (Fed. Cir. 1989). Thus, the product of Muraoka et al. is not the product of the appealed claims.

Accordingly, the dispositive issue in this appeal is whether one of ordinary skill in this art would have employed the alloy steels having the composition shown in Muraoka et al., Isokawa et al., Takada et al. or Maki et al. in the known hot forging process for preparing a machine tooled, flanged bearing with the reasonable expectation of preparing the bearing specified in appealed claim 1. *Vaeck*, supra. Upon review, we find no teaching or suggestion in Muraoka et al., Isokawa et al., Takada et al. and Maki et al., separately or combined, which would have motivated one of ordinary skill in this art to use the alloy steels taught in any of these references in a process which uses hot forging to obtain a machined tooled bearing having a flange integrally formed with a race as specified in appealed claim 1. With respect to Muraoka et al. (e.g., col. 2, lines 11-40, and col. 6, line 59, to col. 7, line 4), we find that the examiner has not explained why one of ordinary skill in this art would have modified the alloy steel composition of Muraoka et al. by adjusting the silicon content thereof, which is a maximum of 0.04% by weight, to at least the lowest amount of silicon in the composition specified in appealed claim 1, that is, 0.07% by weight, and then use that alloy steel in a hot forging process when Muraoka et al. teaches a process that involves cold-rolling (answer, sentence bridging pages 4-5, and supplemental answer, paragraph bridging pages 2-3). Indeed, it is apparent from Muraoka et al. and the other references that small changes in one of the ingredients of the alloy steel composition can materially

change the character of the alloy steel. *In re Sebek*, 465 F.2d 904, 907, 175 USPQ 93, 95 (CCPA 1972).

We find that Isokawa et al. (e.g., page 2), Takada et al. (e.g., page 2) and Maki et al. (e.g., page 2) disclose alloy steels having compositions which at least overlap with the specified composition for the alloy steel in appealed claim 1. However, the examiner has provided no evidence or scientific reasons on this record establishing that one of ordinary skill in this art would have used the cold forging alloy steels of Isokawa et al. and Takada et al. in the hot forging process to make a flanged bearing acknowledged in appellants' specification, even though he states that these references do not disclose a hot forging process. Indeed, we find in this respect that both Isokawa et al. (pages 3-4) and Takada et al. (pages 3-4) teach that "cold forging" is preferable to "hot forging" and specifically disclose alloy steels for "cold forging." With respect to working such alloy steels, Maki et al. suggests that the alloy steels disclosed by Isokawa et al. and Takada et al. address in a limited manner the problems encountered in the hot or cold forging involved in alloy steel molding processes wherein "the useful life of a punch and cracks on the material becomes more serious issues" (e.g., page 4; see also, e.g., pages 3, 5-6, 8 and 16). Thus, Maki et al. discloses alloy steels that are said to improve cold or hot *molding* and the useful life of a "punch" in the hot or cold forging involved with extrusion and continuous swaging in the molding process. While the examiner included Maki et al. in his statement that none of the cited references disclose hot forging, this reference does disclose that hot forging can be used to work the disclosed alloy steel in the molding process. However, having taken the position that hot forging is not disclosed in this reference, the examiner has presented no evidence or scientific reasons on this record establishing that one of ordinary skill in this art would have used the alloy steels of Maki et al. in the prior art hot forging process with the reasonable expectation of making a flanged bearing.

Accordingly, it is manifest that the only direction to appellants' claimed invention as a whole on the record before us is supplied by appellants' own specification. *Vaeck, supra*.

The examiner's decision is reversed.

*Reversed*

MARY F. DOWNEY  
Administrative Patent Judge

CHARLES F. WARREN  
Administrative Patent Judge

PETER F. KRATZ  
Administrative Patent Judge

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